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Docket No. 55807 (70904)

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICANT:	S. Okamoto et al.		
U.S. SERIAL NO.:	09/835,194	GROUP:	2677
FILED:	April 13, 2001	EXAMINER:	L. Shapiro
FOR:	IMAGE REPRODUCING METHOD, IMAGE DISPLAY APPARATUS AND PICTURE SIGNAL COMPENSATION DEVICE		

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By: _____
Steven M. Jensen

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

RESPONSE TO OFFICE ACTION

Applicants are in receipt of the Office Action dated October 4, 2005 of the above-referenced application. Applicants respond to the Office Action as follows.

Claims 1, 3-9, 13, 15, 21, 22, 24-26, 28, 30, 34, 41, 42, 44-46, 48, and 50 are pending in the application.

Claims 1-6 were rejected under 35 USC §102(b) as being anticipated by U.S. Patent 5,546,134 to Lee. Claims 8, 22, 24-26, 30, 42, and 44-46 were rejected under 35 USC §103(a) as being unpatentable over Lee in view of U.S. Patent 6,289,162 to Uehara et al. The remaining dependent claims were rejected on various combinations of prior art references. These rejections are respectfully traversed.

On pages 2-3 of the previous Office Action of 04/12/2005, it was stated: "Lee does not show maximum output brightness of a pixel of the display apparatus varies in accordance with the average signal level and the image is reproduced so that *the maximum output brightness becomes smaller as the average signal level increases*" (emphasis added).

Independent claims 1, 22, and 42 each require the image to be reproduced so that "*the maximum output brightness becomes smaller as the average signal level increases*" (emphasis added, see claim 1, line 13; claim 22, line 24; and claim 42, line 25).

However, in the present Office Action of 10/04/2005, the following portions of Lee were cited allegedly for teaching "*the maximum output brightness becomes smaller as the average signal level increases*": FIG. 3, item Y2; FIG. 4, item c; and column 3, lines 23-52 of Lee (see Office Action at page 3, first paragraph).

We note that Lee discloses three examples of signal processing in FIG. 3. Referring to FIG. 3, a signal conversion characteristic y1 is acquired when APL is in the range of 0 through m, a signal conversion characteristic y2 is acquired when APL is in the range of 1 through m, and a signal conversion characteristic y3 is acquired when APL is approximately 0.5. As to the input signal characteristics, column 3, lines 53-54 shows that $y1(x)=x^{0.5}$ and $y2(x)=x^2$. An input signal characteristic for y3 is represented by an equation which is divided by m=0.5 (median point of an input signal range), where an input characteristic is an inverse of an output characteristic, that is, $y3_L(x)=x^2$ and $y3_H(x)=x^{0.5}$. When the characteristics are simply represented as above, y3 is discontinuous at m=0.5. To smooth this, as taught in column 4, it would be necessary to add a gain to the y3 function. An example of this gain is a coefficient of |(p-q)/p| (see expression (1) in Lee). According to expression (3) in Lee, a signal y3 is multiplied by a compensation coefficient and an amp coefficient based on nAPL.

In contrast, the Applicants' invention teaches that a maximum output brightness $i_{max}(G)$ is adjusted according to an average input signal level. Since the average input signal level of brightness G is provided as a continuous conversion from a standardized level 0 to level 1, there are no divisions corresponding to areas of the levels. Moreover, as shown in FIGS. 1-3 of the application, the maximum output brightness $i_{max}(G)$ is independent of the gamma compensation part, and thereby different from the picture signal conversion method disclosed in Lee.

According to the Applicants' claimed invention, *the maximum output brightness becomes smaller as the average signal level increases*, and thus visibility can be improved in a dark portion of an entirely dark image (an image having low average brightness) while preventing whiteout and glare caused by an entirely bright image (an image having high average brightness), thus improving visibility in a bright portion. Consequently, both the entirely dark image and the entirely bright image can be reproduced as an image having superior visibility (see, e.g., specification at page 59, lines 4-14).

Applicants' further remarks in the response filed on February 4, 2004 are incorporated by reference herein.

Claims 1, 22, and 42 each require **maximum** output brightness of a pixel to be adjusted according to average signal level. In Lee, no maximum brightness adjustment is performed. Instead, Lee teaches that a range of average picture level is divided into a plurality of areas, sets a different input-output characteristic for each of the divided areas (see curves y1, y2, and y3 in FIG. 3), and controls the brightness and contrast of a video input signal according to the input-output characteristic of each area (see column 2, lines 14-23 of Lee).

For at least the reasons discussed above, Lee does not anticipate or otherwise render obvious, when taken in combination with Uehara, the Applicants' claimed invention.

It is believed that the claims are now in condition for allowance. However, if there are any outstanding issues, the Examiner is urged to call the Applicants' representative at the telephone number listed below.

Applicants believe that additional fees are not required for consideration of the within response. However, if for any reason a fee is required, a fee paid is inadequate or credit is owed for any excess fee paid, the Commissioner is hereby authorized and requested to charge Deposit Account No. **04-1105.**

Respectfully submitted,

Date: January 4, 2006

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